

**ABSTRACT OF THE DISCLOSURE**

The present invention is directed towards a data detector for deriving a data signal from an incoming radio frequency input. The data detector comprises a delay logic which receives an unfiltered signal in quadrature and in-phase components, and applies a delay to each of the in-phase and quadrature phase components of the unfiltered input signal. The detector further comprises a first multiplication logic that multiplies the delayed in-phase component of the unfiltered signal by the quadrature phase component of the unfiltered signal to obtain a first result, and a second multiplication logic that multiplies the delayed quadrature phase component of the unfiltered signal by the in-phase component of the unfiltered signal to obtain a second result. Finally, an adder adds the first result with the second result to generate a data signal. In alternative embodiments a post detection correction algorithm may be added to improve performance.